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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/684,173	10/10/2003	Andrew Patrick Baird	03981/100M863-US2	2597
7278	7590	08/19/2004	EXAMINER	
DARBY & DARBY P.C.			LEE, BENNY T	
P. O. BOX 5257			ART UNIT	
NEW YORK, NY 10150-5257			PAPER NUMBER	
			2817	

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Please find below and/or attached an Office communication concerning this application or proceeding.



UNITED STATES DEPARTMENT OF COMMERCE  
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FILED DATE:

10/684173

☒ This application has been examined ☒ Responsive to communication filed on 15 March 2009 ☒ This action is made final.

A shortened statutory period for response to this action is set to expire Three (3) month(s), days from the date of this letter. Failure to respond within the period for response will cause the application to become abandoned. 35 U.S.C. 133

Part I THE FOLLOWING ATTACHMENT(S) ARE PART OF THIS ACTION:

- |   |   |
|---|---|
| 1. <input checked="" type="checkbox"/> Notice of References Cited by Examiner, PTO-892. | 2. <input type="checkbox"/> Notice re Patent Drawing, PTO-948.                  |
| 3. <input type="checkbox"/> Notice of Art Cited by Applicant, PTO-1449.                 | 4. <input type="checkbox"/> Notice of Informal Patent Application, Form PTO-152 |
| 5. <input type="checkbox"/> Information on How to Effect Drawing Changes, PTO-1474.     | 6. <input type="checkbox"/>   |

Part II SUMMARY OF ACTION

1. ☒ Claims 1-21 are pending in the application.  
Of the above, claims 1-10; 11, 13; 16-21 are withdrawn from consideration.
2. ☐ Claims 15 have been cancelled.
3. ☒ Claims 15 is allowed.
4. ☒ Claims 1-10; 11, 13; 16-21 are rejected.
5. ☒ Claims 12, 14 are objected to.
6. ☐ Claims 15 are subject to restriction or election requirement.
7. ☐ This application has been filed with informal drawings under 37 C.F.R. 1.85 which are acceptable for examination purposes.
8. ☐ Formal drawings are required in response to this Office action.
9. ☐ The corrected or substitute drawings have been received on                     . Under 37 C.F.R. 1.84 these drawings are ☐ acceptable; ☐ not acceptable (see explanation or Notice re Patent Drawing, PTO-948).
10. ☐ The proposed additional or substitute sheet(s) of drawings, filed on                      has (have) been ☐ approved by the examiner; ☐ disapproved by the examiner (see explanation).
11. ☐ The proposed drawing correction, filed                     , has been ☐ approved; ☐ disapproved (see explanation).
12. ☒ Acknowledgement is made of the claim for priority under U.S.C. 119. The certified copy has ☐ been received ☐ not been received ☒ been filed in parent application, serial no. 259 771; filed on 9 Sept 1997.
13. ☐ Since this application appears to be in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under Ex parte Quayle, 1935 C.D. 11; 453 O.G. 213.
14. ☐ Other

If applicant desires priority under 35 U.S.C. 120 based upon a previously filed application, specific reference to the earlier filed application must be made in the instant application. For benefit claims under 35 U.S.C. 120, 121 or 365(c), the reference must include the relationship (i.e., continuation, divisional, or continuation-in-part) of the applications. This should appear as the first sentence of the specification following the title, preferably as a separate paragraph unless it appears in an application data sheet. The status of nonprovisional parent application(s) (whether patented or abandoned) should also be included. If a parent application has become a patent, the expression "now Patent No. \_\_\_\_" should follow the filing date of the parent application. If a parent application has become abandoned, the expression "now abandoned" should follow the filing date of the parent application.

If the application is a utility or plant application filed under 35 U.S.C. 111(a) on or after November 29, 2000, the specific reference must be submitted during the pendency of the application and within the later of four months from the actual filing date of the application or sixteen months from the filing date of the prior application. If the application is a utility or plant application which entered the national stage from an international application filed on or after November 29, 2000, after compliance with 35 U.S.C. 371, the specific reference must be submitted during the pendency of the application and within the later of four months from the date on which the national stage commenced under 35 U.S.C. 371(b) or (f) or sixteen months from the filing date of the prior application. See 37 CFR 1.78(a)(2)(ii) and (a)(5)(ii). This time period is not extendable and a failure to submit the reference required by 35 U.S.C. 119(e) and/or

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120, where applicable, within this time period is considered a waiver of any benefit of such prior application(s) under 35 U.S.C. 119(e), 120, 121 and 365(c). A priority claim filed after the required time period may be accepted if it is accompanied by a grantable petition to accept an unintentionally delayed claim for priority under 35 U.S.C. 119(e), 120, 121 and 365(c). The petition must be accompanied by (1) the reference required by 35 U.S.C. 120 or 119(e) and 37 CFR 1.78(a)(2) or (a)(5) to the prior application (unless previously submitted), (2) a surcharge under 37 CFR 1.17(t), and (3) a statement that the entire delay between the date the claim was due under 37 CFR 1.78(a)(2) or (a)(5) and the date the claim was filed was unintentional. The Director may require additional information where there is a question whether the delay was unintentional. The petition should be addressed to: Mail Stop Petition, Commissioner for Patents, P.O. Box 1450, Alexandria, Virginia 22313-1450.

The disclosure is objected to because of the following informalities: Note that subheadings should be provided to delineate the different sections of the specification. Page 2, line 14, note that "losses" should be correctly written as – loss --. Page 3, line 8, note that – of flats – should follow "pair" for clarity of description line 12, note that reference to "reflector bore" is vague in meaning (ie.. should it be – reflector plate – or – wave guide bore --?. Page 3, line 13 and page 4, line 3, note that – the <sup>---</sup><sub>^</sub> should precede "rotator" and "wall" respectively. Page 3-6, note that "said" should be rewritten as the <sup>---</sup><sub>^</sub> <sup>---</sup><sub>^</sub> at each occurrence..

Appropriate correction is required.

Note that in the brief description of figs. 6a, 6b, and 6d, is the reference to embodiments shown in figs. 1-6 correct as recited? In the brief description of figs. 14, 15 and 16 note that plates shown in fig. 16 is vague in meaning (i.e., Fig. 16, being a graph does not depict a plate). Note that for the detail description of figs. 1 to 4 (collectively), the individual reference labels should reference the actual figure(s) in which the labeled feature(s) actually appear(s) in unless the reference label appears in each one of figs. 1-4. Examples include "waveguide wall 26" appearing in fig. 2. the "longitudinal plate 28" appearing in Fig. 1 – etc. Clarification is needed. In the description of fig. 6d, should "an enlarged view of Fig. 5a" correctly read as – an enlarged view of fig. 6a --? Note that the various dimensions label for the structural features of Figs. 3, 4, 10a, 10b, 13a, 13b need to be individually described. Note that in fig. 5, parameters  $[f_c, V_1, f_c, \lambda_2, f_{req}, (c/\lambda_0)]$  need a detail explanation. Note that for the various graphs in figs. 6a, 6b, 6c, 6d, 11, 12, 14, 15, 16, detail descriptions of the various descriptive parameters (e.g.  $S_{mp}$ , CH1,  $\log MAG$ ,  $PHASE (EH-EV)$ , S-PLOTS, etc.) need to be provided as well as further elaboration of the individual curves. Note that in figs. 7a, 7b, 8a, 8b, the reference labels therein need to be explicitly described relative to the specification description of these drawing figures.

The drawings are objected to because of the following in figs. 1 or 2, note that parameters ( $V_{20\theta}$ ,  $V_{2PR}$ ) need to be provided as per the specification description; In Fig. 5, note that parameter  $C/\lambda$  needs to be provided as per the figure description; In Figs. 10a, 10b, note that reference label – 46 – needs to be provided as per the specification description of these drawing figures. A proposed drawing correction or corrected

drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

Claims 1-10, 16-21 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

In claims, 1, 16, note that the recitation "whereby said first and said second component are phase shifted with respect to each other in the differential phase shift portion" does not appear to be a proper characterization of the invention. Note from the specification that the first component is reflected by the leading edge and does not propagate into the differential phase shift portion. That is to say, only the second component propagates into the differential phase shift portion to be acted on by such portion. Clarification is needed.

In claim 16, note that the recitation "a first probe for receiving said orthogonally polarized signal" does not appear to be a proper characterization. Note from the specification that the first probe only receives one of the two orthogonally polarized signals. Clarification is needed.

The following claims have been found objectionable for reasons set forth below:

In claim 1, third paragraph sixth and seventh lines therein, note that "the end" should be rephrased as – an end –; tenth line therein, note that – reflector – should precede "plate" for a proper characterization.

In claim 4, note that the "two flats" recited herein should be related to "the flats" as recited in claim 3.

In claim 11, second and fourth paragraphs, note that the first probe and second probe should be related to the earlier recited at least two outputs to avoid the probes being construed as being different from the outputs; fifth paragraph, note that the ~~need~~ end of the waveguide should be an end of the waveguide.

In claim 16, second paragraph, note that the same should be rephrased as --- a common ---; third paragraph, note that -- common -- should precede each occurrence of "longitudinal plane"; third paragraph, seventh line, the end of the waveguide should be -- an end of the waveguide --; third paragraph 12th line, -- said -- should be deleted as being unnecessary.

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless --

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 11, 13, are rejected under 35 U.S.C. 102(b) as being clearly anticipated by either Tsukada or the International ('938) application (both of record in the parent application).

Both the Tsukada reference (see fig. 7) and the international publication (see fig. 4) pertain to waveguides configured to receive orthogonally polarized signals. In particular the waveguide includes respective probes (e.g. 34a, 34b in the application and 9, 10 in Tsukada) which are aligned in a common plane. A polarization reflecting means (e.g. 4 in Tsukada and 36 in the publication) is interposed between the two probes such as to reflect one of the polarized signals for reception by one of the probes,

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while permitting the other polarized signal to pass. The polarized signal which is passed then impinges upon a reflecting and rotating structure (e.g. 44 in the publication and 7, 8 in Tsukada). The passed polarized signal then impinge on a leading edge of the reflecting and rotating structure which reflects a portion of the impinging signal (from the leading edge) while permitting a portion of the signal to pass through the structure and reflect off the short circuited end of the waveguide. The length of the reflecting and rotating structure is such that an appropriate degree of phase shift is effected for the impinging and reflected signals, thereby resulting in an effective rotation of the other polarized signal such that it may be recombined and received by the other probe in the common plane. Also, note the 45 degree orientation of the respective reflecting rotating structures.

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-4, 7-9; 16-18, 21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tsukada in view of the International ('938) application (both of record, in the parent application).

As described above, the Tsukada reference meets the general structural configuration as set forth in independent claims 1, 15, 16, but does not disclose the specific differential phase shift arrangement (i.e. parallel flats) as currently claimed.



However, as would have been evident from fig. 8c of the International application, the use of smooth flats as an exemplary teaching of a differential phase shift element is well recognized in the art.

Accordingly, it would have been obvious in view of the references taken as a whole to have modified the reflecting and rotating structure (e.g. 7) of Tsukada to have included a differential phase shift portion (e.g. the portion designed " $\lambda/4$ ") of the planar flat type as exemplarily taught by the publication. Such a modification would have been considered an obvious substitution of equivalent differential phase shift structures which would have effect an equivalent function, and as such would have suggested the obviousness of the combination. Moreover, note that the orientation of the flat portions would have been an obvious design consideration which would have been within the purview of one of ordinary skill in the art.

Claims 5, 19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tsukada in view of Furukawa (both of record in the parent application).

Tsukada, again, discloses the polarized signal arrangement as claimed, except for the differential phase shift section being elliptical in shape.

As disclosed by Furukawa, the use of elliptical shaped waveguide sections to effect differential phase shift would have been deemed conventional in the art.

Accordingly, it would have been obvious in view of the references taken as a whole to have modified the Tsukada differential phase shift section (i.e.  $\lambda/4$  section) by an elliptical waveguide would have been considered an obvious substitution of

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equivalent differential polarized<sup>ss</sup>, as would have been known to those of ordinary skill in the art.


This is a continuation of applicant's earlier Application No. 94187. All claims are drawn to the same invention claimed in the earlier application and could have been finally rejected on the grounds and art of record in the next Office action if they had been entered in the earlier application. Accordingly, **THIS ACTION IS MADE FINAL** even though it is a first action in this case. See MPEP § 706.07(b). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no, however, event will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication should be directed to Benny T Lee at telephone number (571)-272-1764.

Lee/ds

08/16/04

  
BENNY T. LEE  
PRIMARY EXAMINER  
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